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| 10/826,264      | 04/19/2004  | Hyun-Sang Chung      | 3430-0202P          | 9415             |

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| EXAMINER |
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DUONG, THOI V

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| ART UNIT | PAPER NUMBER |
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2871

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/826,264

Applicant(s)

CHUNG ET AL.

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 ~~is~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/12/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-14 in the reply filed on October 20, 2005 is acknowledged. Applicant's arguments are found persuasive, therefore, the restrictions are now withdrawn.

Accordingly, claims 1-24 are pending and considered in this office action.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 15-21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishikawa et al. (Ishikawa, USPN 6,414,733 B1).

Re claim 15, as shown in Figs. 5 and 6, Ishikawa discloses a method of manufacturing a liquid crystal display, comprising:

forming a plurality of patterned spacers 18 in a first region A and a plurality of supporting patterns 14 in a second region B over a first substrate 11, wherein the second region surrounds the first region (col. 15, lines 33-49);

forming a plurality of seal patterns 4 in the second region B including the plurality of supporting patterns 14 (col. 11, lines 12-24);

disposing the first substrate 11 over a second substrate 21 and attaching the first and second substrates by using the seal pattern 4 (col. 11, lines 12-24); and

injecting a liquid crystal material between the first and second substrates (col. 11, lines 12-24).

Re claim 16, a thickness of the liquid crystal layer is defined as a cell gap, which is determined by thicknesses of the patterned spacers 18 and the supporting patterns 14 (col. 3, lines 17-35, col. 4, lines 30-33 and col. 8, line 65 through col. 9, line 2).

Re claim 17, as shown in Figs. 6A-6E, the method further comprises a step of forming a color filter layer 13R, 13G, 13B before forming the plurality of patterned spacers 18 and supporting patterns 14, wherein the color filter layer is composed of red, green and blue sub-color filters.

Re claim 18, the method further comprises a step of forming a plurality of compensating patterns 13R' before forming the plurality of patterned spacers 18 and supporting patterns 14, wherein the plurality of compensating patterns is spaced apart from each other at both ends (right and left ends) of the device 1" shown in Fig. 5,

wherein, re claim 19, forming the plurality of compensating patterns 13R' is simultaneously performed with forming the color filter layer 13R, 13G, 13B (Fig. 6A); and

wherein, re claim 20, the plurality of compensating patterns 13R' correspond to the plurality of supporting patterns 14.

Re claim 21, as shown in Fig. 6A, the method further comprises forming a black matrix 12a before forming the color filter layer 13R, 13G, 13B, wherein the black matrix corresponds to an interface between the sub-color filters (col. 17, lines 4-19).

Re claim 24, the seal patterns contain no glass fibers (col. 9, lines 40-51).

4. Claims 1-4, 11-17 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Manabe et al. (Manabe, USPN 6,570,639 B1).

Re claims 1 and 15, as shown in Figs. 1-4, Manabe discloses a liquid crystal display device as well as a method of manufacturing the same, comprising:

a first substrate 11 having a first region 40 (display area) and a second region, wherein the second region (outside the display area) surrounds the first region;

a plurality of patterned spacers 31 formed over the first substrate 11 in the first region 40,

a plurality of supporting patterns 31 spaced apart from each other formed over the first substrate 11 in the second region;

a plurality of seal patterns 25 formed in the second region including the plurality of supporting patterns 31 (Figs. 2-4);

Art Unit: 2871

a second substrate 21 spaced apart from and attached to the first substrate 11 by the seal pattern 25 (col. 8, lines 21-28); and

a liquid crystal layer LQ injected between the first and second substrates (col. 8, lines 29-35).

Re claim 2, the device further comprises a color filter layer 24R, 24G, 24B between the first substrate 11 and the plurality of patterned spacers 31, wherein the color filter layer is composed of red, green and blue sub-color filters (col. 4, lines 13-17).

Re claim 3, the device further comprises a plurality of compensating patterns 24 between the first substrate 110 and the plurality of supporting patterns 31 (Figs. 3 and 4),

wherein, re claim 4, the plurality of compensating patterns 24 are formed of a same material as the color filter layer 24R, 24G, 24B (col. 4, lines 13-17).

Re claim 11, the plurality of supporting patterns 31 are formed of a same material through a same process as the plurality of patterned spacers (col. 7, lines 4-26).

Re claims 12 and 16, a thickness of the liquid crystal layer is defined as a cell gap, which is determined by thicknesses of the patterned spacers 31 and the supporting patterns 31 (col. 1, lines 35-40).

Re claim 13, the supporting patterns 31 formed along the seal patterns 25 act as a supporter of the seal patterns as shown in Fig. 2.

Re claims 14 and 24, the seal patterns contain no glass fibers (col. 8, lines 21-28).

Re claim 17, the method further comprises a step of forming a color filter layer 24R, 24G, 24B before forming the plurality of patterned spacers 31 and supporting patterns 31, wherein the color filter layer is composed of red, green and blue sub-color filters (col. 7, lines 4-60).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe et al. (Manabe, USPN 6,570,639 B1) in view of Ishikawa et al. (Ishikawa, USPN 6,414,733 B1).

Re claim 7, Manabe discloses a liquid crystal display device that is basically the same as that recited in claim 7 except for a common electrode formed between the patterned spacers and the color filter.

As shown in Figs. 5 and 6E, Ishikawa discloses a liquid crystal display device comprising a common electrode 16 formed between the patterned spacers 18 and the color filter layer 13 (col. 17, lines 32-39),

wherein, re claim 8, the device further comprises a plurality of conductive material patterns between supporting patterns 14 and the first substrate 11, wherein the plurality of conductive material patterns is formed of a same material as the common electrode 16 (Figs. 6B and 6E).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display of Manabe with the teaching of Ishikawa by forming a common electrode between the patterned spacers and the color filter so as to attain a narrow architrave configuration for the display (col. 16, lines 42-52)

Re claims 5, 6 and 21, the device of Ishikawa further comprises a black matrix 12a formed between sub-color filters 13R, 13G, 13B, and a plurality of patterned spacers 18 corresponding to the black matrix 12a (col. 17, lines 4-64).

Re claim 9, as shown in Fig. 5, the device of Ishikawa further comprises an array element layer over an inner surface of the second substrate 21, wherein the array element layer includes a pixel electrode 22 (liquid crystal-driving transparent electrode) (col. 9, lines 18-33).

Re claim 10, as shown in Fig. 3, the device of Ishikawa further comprises an array element layer over the second substrate 3', wherein the array element layer includes a pixel electrode 22b and a common electrode 22a (col. 10, lines 52-59).

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe et al. (Manabe, USPN 6,570,639 B1) in view of Lee (US 2002/0063837 A1).

Manabe discloses a method of manufacturing a liquid crystal display that is basically the same as that recited in claim 22 except for forming the seal pattern by one of a screen-printing method and a dispensing method.



However, these methods are well known in the art as disclosed by Nakamura who prefers the screen-printing method for simplification of fabrication (page 1, paragraph 10).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the seal pattern by the screen-printing method as taught by Nakamura to simplify the fabrication process (page 1, paragraph 10).

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe et al. (Manabe, USPN 6,570,639 B1) in view of Hiroshima et al. (Hiroshima, USPN 6,705,584 B2).

Manabe discloses a method of manufacturing a liquid crystal display that is basically the same as that recited in claim 23 except for the seal pattern disposed between adjacent compensating patterns and between adjacent supporting patterns.

As shown in Figs. 2 and 3, Hiroshima discloses a method of manufacturing a liquid crystal display comprising a seal pattern disposed between patterned spacers SP2 and SP3.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Manabe with the teaching of Hiroshima by forming the seal pattern between adjacent compensating patterns and between adjacent supporting patterns so as to compensate for deformation of the sealing material (see Abstract).

Art Unit: 2871

**Conclusion**

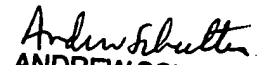
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



12/23/2005

  
ANDREW SCHECHTER  
PRIMARY EXAMINER